

A. AMENDMENTS TO CLAIMS

Please cancel Claim 18 and amend the claims as indicated hereinafter.

- 1 1. (CURRENTLY AMENDED) A method for processing data on a distributed
2 computing system that includes a plurality of nodes, the method comprising the
3 steps of:
4 maintaining mapping data that specifies work that can be performed by each of the
5 plurality of nodes;
6 in response to receiving, ~~receiving a first work request to perform first work~~ from
7 a first process on a first node from the plurality of ~~nodes~~; nodes, a first
8 work request to perform first work, determining based upon the first work
9 and the mapping data, that a first portion of the first work is to be
10 performed on a second node from the plurality of ~~nodes~~; nodes and that a
11 second portion of the first work is to be performed on a third node from
12 the plurality of nodes;
13 providing ~~the first~~ a second work request to a second process on the second node,
14 wherein the ~~first~~ second work request specifies that the first portion of the
15 first work is to be performed and that results of performing the first
16 portion of the first work are to be provided directly to the first process; ~~the~~
17 ~~first process is to directly receive results of the first work~~;
18 ~~determining based upon the first work and the mapping data, that the first work is~~
19 ~~also to be performed on a third node from the plurality of nodes~~, and
20 providing a ~~second~~ third work request to a third process on the third node,
21 wherein the ~~second~~ third work request specifies that the second portion of

22 the first work is to be performed and that results of performing the second
23 portion of the first work performed on the third node are to be provided
24 directly to the first process.

1 2. (CURRENTLY AMENDED) The method as recited in Claim 1, further
2 comprising including the steps of
3 in response to receiving from the first process a second request to perform second
4 work, work from the first process, determining based upon the second
5 work and the mapping data, that the second work is to be performed on a
6 ~~third~~ the third node from the plurality of nodes, and
7 providing the second request to a ~~third~~ the third process on the third node,
8 wherein the second request specifies that the first process is to receive
9 results of the second work directly from the third process.

1 3. (CURRENTLY AMENDED) The method as recited in Claim 1, further
2 comprising including the steps of
3 in response to receiving, from the third process on the third node, receiving a
4 second request to perform second work, work from a third process on a
5 ~~third node from the plurality of nodes~~, determining based upon the second
6 work and the mapping data, that the second work is to be performed on the
7 second node, and
8 providing the second request to the second process, wherein the second request
9 specifies that the third process is to receive results of the second work
10 directly from the second process.

1 4. (CURRENTLY AMENDED) The method as recited in Claim 1, further
2 ~~comprising including the steps of~~
3 in response to receiving a second request to perform second work from ~~a third~~ the
4 third process on ~~a third~~ the third node from the plurality of nodes,
5 determining based upon the second work and the mapping data, a fourth
6 node from the plurality of nodes on which the second work is to be
7 performed, and
8 providing the second request to a fourth process on the fourth node, wherein the
9 second request specifies that the third process is to receive results of the
10 second work directly from the fourth process.

1 5. (CANCELED)

1 6. (CURRENTLY AMENDED) The method as recited in Claim 1, wherein the step
2 of determining that the first portion of the first work is to be performed on a
3 ~~second~~ the second node includes ~~the step of~~
4 determining one or more resources required to perform the first portion of the first
5 work, and
6 determining which of the plurality of nodes is allowed to perform the first portion
7 of the first work on the one or more resources.

1 7. (CURRENTLY AMENDED) The method as recited in Claim 1, wherein:
2 ~~the step of determining that the~~ first portion of the first work is to be performed on
3 a second node from the plurality of nodes includes the step of a director

4 determining that the first portion of the first work is to be performed on a
5 second node from the plurality of nodes, and
6 ~~the step of providing the first second~~ work request to a second process on the
7 second node includes ~~the step of the director providing the first second~~
8 work request to a second process on the second node.

1 8. (CURRENTLY AMENDED) The method as recited in Claim 1, further
2 comprising ~~the step of~~ upon completion of the first portion of the first work, the
3 second process providing the results of performing the first portion of the first
4 work directly to the first process.

1 9. (CURRENTLY AMENDED) The method as recited in Claim 1, wherein the ~~first~~
2 second work request is a remote procedure call.

1 10-15. (CANCELED)

1 16. (CURRENTLY AMENDED) A distributed computing system for performing
2 work, the distributed computing system comprising:
3 a plurality of nodes; and
4 a director communicatively coupled to the plurality of nodes, the director being
5 configured to
6 maintain mapping data that specifies work that can be performed by ~~each~~
7 ~~of the~~ plurality of nodes,
8 in response to receipt, from a first process on a first node from the
9 plurality of nodes, of a first work request to perform first work,
10 ~~work from a first process on a first node from the plurality of~~

11 ~~nodes~~, determine based upon the first work and the mapping data,
12 that a first portion of the first work is to be performed on a second
13 node from the plurality of ~~nodes~~, nodes and that a second portion
14 of the first work is to be performed on a third node from the
15 plurality of nodes and
16 provide a second work request to~~request that the first work be performed~~
17 ~~by a second process on the second node, wherein the second~~
18 ~~request specifies that the first portion of the first work is to be~~
19 ~~performed and that results of performing the first portion of the~~
20 ~~first work are to be provided first results of the first work be~~
21 ~~directly provided to the first process;~~
22 ~~determining based upon the first work and the mapping data, that the first~~
23 ~~work is also to be performed on a third node from the plurality of~~
24 ~~nodes; and~~
25 ~~providing a second~~ provide a third work request to a third process on the
26 third node, wherein the ~~second~~ third work request specifies that the
27 second portion of the first work is to be performed and that results
28 of performing the second portion of the first work performed on
29 ~~the third node~~ are to be provided directly ~~from the third node to the~~
30 first process.

- 1 17. (CURRENTLY AMENDED) The distributed computing system as recited in
2 Claim 16, wherein the director is further configured to provide the ~~first~~ second
3 work request to the second process.

1 18. (CANCELED)

1 19. (ORIGINAL) The distributed computing system as recited in Claim 16, further
2 comprising resource data that specifies the access rights of the plurality of nodes
3 relative to resources.

1 20. (CURRENTLY AMENDED) A computer-readable medium carrying ~~one or more~~
2 ~~sequences of one or more~~ instructions for processing data on a distributed
3 computing system that includes a plurality of nodes, ~~the one or more sequences of~~
4 ~~one or more instructions include instructions which, when executed wherein~~
5 processing of the instructions by one or more processors, cause: ~~cause the one or~~
6 ~~more processors to perform the steps of:~~
7 maintaining mapping data that specifies work that can be performed by ~~each of~~
8 the plurality of nodes;
9 in response to receiving, ~~receiving a first work request to perform first work~~ from
10 a first process on a first node from the plurality of ~~nodes~~; nodes, a first
11 work request to perform first work, determining based upon the first work
12 and the mapping data, that a first portion of the first work is to be
13 performed on a second node from the plurality of ~~nodes~~; nodes and that a
14 second portion of the first work is to be performed on a third node from
15 the plurality of nodes;
16 providing ~~the first~~ a second work request to a second process on the second node,
17 wherein the ~~first~~ second work request specifies that the first portion of the
18 first work is to be performed and that results of performing the first

19 portion of the first work are to be provided directly to the first process; the
20 first process is to directly receive results of the first work;
21 determining based upon the first work and the mapping data, that the first work is
22 also to be performed on a third node from the plurality of nodes, and
23 providing a ~~second~~ third work request to a third process on the third node,
24 wherein the ~~second~~ third work request specifies that the second portion of
25 the first work is to be performed and that results of performing the second
26 portion of the first work performed on the third node are to be provided
27 directly from the third node to the first process.

1 21. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, further comprising additional instructions which, when executed by the one or
3 more processors, cause including the steps of
4 in response to receiving from the first process a second request to perform second
5 work, work from the first process, determining based upon the second
6 work and the mapping data, that the second work is to be performed on a
7 ~~third~~ the third node from the plurality of nodes, and
8 providing the second request to a ~~third~~ the third process on the third node,
9 wherein the second request specifies that the first process is to receive
10 results of the second work directly from the third process.

1 22. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, further comprising additional instructions which, when executed by the one or
3 more processors, cause including the steps of

4 in response to receiving, from a third process on a third node from the plurality of
5 nodes, receiving a second request to perform second work, ~~work from a~~
6 ~~third process on a third node from the plurality of nodes~~, determining
7 based upon the second work and the mapping data, that the second work is
8 to be performed on the second node, and
9 providing the second request to the second process, wherein the second request
10 specifies that the third process is to receive results of the second work
11 directly from the second process.

1 23. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, further comprising additional instructions which, when executed by the one or
3 more processors, cause ~~including the steps of~~
4 in response to receiving a second request to perform second work from a third
5 process on a third node from the plurality of nodes, determining based
6 upon the second work and the mapping data, a fourth node from the
7 plurality of nodes on which the second work is to be performed, and
8 providing the second request to a fourth process on the fourth node, wherein the
9 second request specifies that the third process is to receive results of the
10 second work directly from the fourth process.

1 24. (CANCELED)

1 25. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, wherein ~~the step of~~ determining that the first portion of the first work is to be
3 performed on a second node includes ~~the step of~~

4 determining one or more resources required to perform the first portion of the first
5 work, and
6 determining which of the plurality of nodes is allowed to perform the first portion
7 of the first work on the one or more resources.

1 26. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, wherein:
3 ~~the step of determining that the~~ first portion of the first work is to be performed on
4 a second node from the plurality of nodes includes the step of a director
5 determining that the first portion of the first work is to be performed on a
6 second node from the plurality of nodes, and
7 ~~the step of providing the first work request to a second process on the second~~
8 node includes the step of the director providing the first work request to a
9 second process on the second node.

1 27. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, further comprising additional instructions which, when executed by the one or
3 more processors, cause ~~the step of~~ upon completion of the first portion of the first
4 work, the second process providing the results of performing the first portion of
5 the first work directly to the first process.

1 28. (CURRENTLY AMENDED) The computer-readable medium as recited in Claim
2 20, wherein the ~~first~~ second work request is a remote procedure call.

1 29. (CANCELED)

1 30. (CURRENTLY AMENDED) A method for processing data on a distributed
2 computing system that includes a plurality of nodes, the method comprising:
3 ~~comprising the steps of~~:
4 maintaining mapping data that specifies work that can be performed by ~~each of the~~
5 plurality of nodes; and
6 in response to receiving a first work request to perform first work from a first
7 process on a first node from the plurality of nodes,
8 determining based upon the first work and the mapping data, that the first
9 work is to be performed on a second node from the plurality of
10 nodes,
11 generating an updated first work request that specifies that the first process
12 is to directly receive results of performing the first work, and
13 providing the updated first work request to a second process on the second
14 node.

1 31. (CURRENTLY AMENDED) An apparatus for processing data on a distributed
2 computing system, the apparatus comprising a memory carrying ~~one or more~~
3 ~~sequences of one or more~~ instructions which, when executed by one or more
4 processors, cause: ~~cause the one or more processors to perform the steps of~~:
5 maintaining mapping data that specifies work that can be performed by ~~each of the~~
6 plurality of nodes; and
7 in response to receiving a first work request to perform first work from a first
8 process on a first node from the plurality of nodes,

9 determining based upon the first work and the mapping data, that the first
10 work is to be performed on a second node from the plurality of
11 nodes,
12 generating an updated first work request that specifies that the first process
13 is to directly receive results of performing the first work, and
14 providing the updated first work request to a second process on the second
15 node.

1 32. (CURRENTLY AMENDED) A computer-readable medium for processing data on
2 a distributed computing system, the computer-readable medium carrying ~~one or~~
3 ~~more sequences of one or more~~ instructions which, when executed by one or more
4 processors, cause: ~~cause the one or more processors to perform the steps of:~~
5 maintaining mapping data that specifies work that can be performed by ~~each of the~~
6 plurality of nodes; and
7 in response to receiving a first work request to perform first work from a first
8 process on a first node from the plurality of nodes,
9 determining based upon the first work and the mapping data, that the first
10 work is to be performed on a second node from the plurality of
11 nodes,
12 generating an updated first work request that specifies that the first process
13 is to directly receive results of performing the first work, and
14 providing the updated first work request to a second process on the second
15 node.